COMMENTARY

The optimal management of mushroom poisoning remains undetermined

> I have heard of a physician of Mysia who administered Fowl's dung to persons suffering from fungus poisoning, and I myself have experimented with the remedy. I have used finely powdered dung mixed with water or mixed with honey and vinegar. The patients immediately on drinking the mixture vomited and recovered. One must observe that the dung of a fowl at liberty is more efficacious than one in confinement.
>
> *De simplicium medicamentorum temperamentis et facultatibus*
>
> GALEN, CA AD 150

Although the treatment of patients exposed to toxic mushrooms has become somewhat more sophisticated since Galen first extolled the advantages of free-range chicken,[1(pp39-40)] the ideal management of these cases has still not been determined. Problems arise because often the clinical history is unclear, the precise mushroom or mushrooms involved are unidentified, or the diagnosis is unsuspected in a patient who presents with signs and symptoms of gastroenteritis. In addition, the various antidotes—such as silibinin and thioctic acid [lipoic acid]—proposed for treating exposure to the potentially fatal amatoxin-containing species have not been shown to improve outcome.

Some helpful information can be gleaned from studies previously published in the medical literature. Trestrail analyzed cases of mushroom exposure reported in 1989 to the National Data Collection System of the American Association of Poison Control Centers (AAPCC).[2] He found that of 9,208 total cases of exposure, the species involved was identified in only 3.4%. Most patients (81%) were younger than 6 years. Only 0.2% of the patients had major toxic manifestations, and the mortality rate was extremely low (0.03%). All 3 deaths involved amatoxin-containing species such as *Amanita phalloides.* The 1998 AAPCC data showed similar trends: 9,839 reported cases of exposure, with 69% involving children younger than 6 years. The species was identified in only 12% of cases, with only 1 death.[3]

The retrospective study by Nordt and colleagues of cases of mushroom exposure reported to the AAPCC during the years 1993 through 1997 from California had results consistent with those of previous reports. The single death in the 6,317 cases surveyed involved an adult who ate foraged mushrooms. Recent literature suggests that almost all deaths in these cases arise from similar scenarios: adults making a meal of foraged wild mushrooms.[4-8] Often the victims are immigrants who do not realize that mycologic expertise developed in their native lands may not hold up among the unfamiliar species of the United States. Deaths of children who inadvertently ingest a mushroom while "grazing" outdoors seem to be exceedingly rare, if they occur at all. I was unable to find any such case reported in the recent medical literature.

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Deciding on the optimal management approach when faced with a case in which a fatal outcome is possible but unlikely is always difficult. In patients with mushroom exposure, suspicion should be heightened and management more aggressive when gastrointestinal symptoms begin more than 6 hours after ingestion or when the patient reports eating a meal of foraged mushrooms. Identifying the exact species involved would be ideal, but often no specimen is provided or no expert mycologist is available. Computerized mushroom identification systems have not proved to be reliable.[9] Severe gastrointestinal manifestations should be treated aggressively with volume replacement and cardiovascular support. Patients suspected of having ingested amatoxin-containing mushrooms should be observed (as an outpatient or inpatient) at least daily for 72 hours for recurrent symptoms, elevated liver enzyme levels, hypoglycemia, acidosis, and coagulopathy.

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